

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
PERMITTING and COMPLIANCE DIVISION  
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM  
(MPDES)**

Statement of Basis

Permittee:	Montana Sulphur & Chemical Company
Permit No.:	MT0000230
Receiving Water:	Dry Creek
Facility Information:	
Name	Montana Sulphur & Chemical Company
Location	627 ExxonMobil Road Billings, MT
Facility Contact:	Donald Lawrence Zink, President P.O. Box 31118 Billings, MT 59107 406-252-9324
Fee Information:	
Number of Outfalls	1 - (for fee determination)
Outfall – Type	001 - Minor - privately owned treatment works with non-contact cooling water

## I. Permit Status

The MPDES permit for Montana Sulphur & Chemical Company (MSCC) was issued on February 26, 1998 and expired on January 31, 2002. The facility submitted an application to renew the permit on August 1, 2001. The application was determined complete on September 27, 2002. An updated application was received from the facility on July 13, 2007. The updated application will be used to renew the MPDES permit.

## II. Facility Information

### A. Facility Description

MSCC is located on a strip of property about 200 feet wide and 2800 feet long. It is bounded on the north by the ExxonMobil refinery and to the south by the Burlington Northern Santa Fe (BNSF) Railroad mainline tracks, the Billings Livestock yard and Yellowstone Energy Limited Partnership. When the facility was constructed in the 1950's a main storm drain (14-inch culvert) that leads to Dry Creek was installed through the length of the property (see Figure 2).

MSCC processes refinery "acid gas" and "sour fuel gas" from ExxonMobil and returns processed fuel gas to the refinery. Chemical products and gases are produced from the gas treatment process. The MSCC gas treatment process scrubs and de-sulfurizes fuel gases and processes hydrogen sulfide-containing gases into elemental sulfur (brimstone). The plant runs continuously and produces approximately 120 tons of sulfur each day. Elemental sulfur is stored on site and is further processed into prills, slates, flakes, and other solid sulfur products. These products are sold primarily for agricultural uses as soil amendments (to control alkalinity) and fertilizers (as an essential plant nutrient) as well as for industrial uses.

Purified hydrogen sulfide gas is also produced as well as low sulfur fuel gases (similar to natural gas). Process wastewater from the production of these gases is generated from condensation during pipelining or processing. Process wastewater is piped back to the ExxonMobil refinery for recycling or treatment and disposal. The gas treatment processes include numerous non-contact heat exchangers for gas and process cooling. There is also non-contact cooling equipment for compressors, air and product cooling, and for other related equipment.

Domestic wastewater from offices and shops is treated in onsite septic tanks and drain fields.

Non-contact cooling water for the plant is supplied by ExxonMobil and five MSCC onsite ground water wells. Non-contact cooling water includes water used for equipment cooling, cooling tower makeup and dilution of effluent heat. The intended use of non-contact cooling water is to absorb waste heat rejected from the processes or auxiliary

operations at the plant. ExxonMobil supplies MSCC with approximately 1,000 gallons per minute (gpm) of Yellowstone River water (about 55% of supply water) that it obtains from the ExxonMobil pump house on the river. Five MSCC ground water wells supply approximately 800 gpm of cooling water (about 45% of supply water). The Yellowstone River water and ground water are mixed in several cooling water supply pipe headers that feed equipment requiring cooling water. Figure 1 shows the raw water flow through MSCC.

The facility operates a number of boiler feed water filters, water softeners, boilers, and non-fired steam generators to produce heating steam for process equipment and buildings. Boiler feed makeup water is provided from the cooling water system and is pre-conditioned by filtration and zeolite selective ion absorption water softeners using commercial softener salt for regeneration before it is added to the boiler system. Steam condensate is continuously collected and recycled. Water filter, softener regeneration wastewater, and back flush water are discharged with non-contact cooling water.

Three corrosion inhibitors are used in boiler water: 1) Amercor 1849 (amine formula to reduce iron and copper deposits), 2) AdVANtage Plus 6445 (a polymer to reduce hardness based scaling), and 3) Catalyzed Sulfite (a sodium sulfite formula to remove oxygen).

Boiler blow down water and pump-house sump waters are discharged to the boiler blow down pond where it evaporates, percolates into the ground or is used for onsite irrigation. The pond is located on the eastern portion of the site and is approximately 50 feet wide, 100 feet long and 10 feet deep. No outfall is requested for the boiler blow down pond in the application. "The boiler blow down pond is not lined. The pond was dug into the soil. However, over the years of use, it is likely that sediment has accumulated such that permeability has been reduced over time. The pond may have been dredged occasionally" (email received from Steven Smith, P.E., Engineering and Environmental Consulting, July 24, 2007). The pond contains mostly sludge (November 14, 2006 inspection report). The boiler blow down pond is further discussed in Section VIII – Special Conditions/Compliance Schedule.

Historically, cooling water has been used as "once through non-contact cooling water" as required in the previous MPDES permit. In the renewal application, MSCC is requesting to modify the cooling water system to allow multiple passes of cooling water between a newly installed cooling tower and process cooling equipment. MSCC would modify the piping systems to allow water to be circulated from one or more cooling process heat exchangers to the cooling tower and then pumped back to cooling loads with a smaller discharge (blow down) from the cooling tower. This modification will reduce makeup non-contact cooling water demand per unit of production and improve the efficiency of non-contact cooling water use. After non-contact cooling water is used, it is discharged at various points into the plant drainage culvert that drains to Dry Creek. In addition, as stated above, the solids content from water filters, softener regeneration wastewater and back flush water are discharged with non-contact cooling water.

The proposed cooling tower modifications include a pump system that will collect cooled water for partial recycle of cooling tower water before discharge to the culvert. The cooling tower will operate with a "blow down" discharge into the culvert that drains into Dry Creek.

The cooling tower in its present configuration utilizes very little, if any, biological control with current river waters. However, efficient cooling tower operation and accepted good practices for cooling towers typically requires some use of biocides to control biological growth and fouling of the cooling tower media. MSCC proposes to use sodium or calcium hypochlorite solution as the biocide in batch additions, as needed. Where fouling occurs, or for the prevention of fouling, chlorine doses may be used to provide from 0.5 mg/L to approximately 1 mg/L free chlorine in the cooling tower water.

Storm water enters onsite surface drains that empty into the culvert that runs the length of the facility. Storm water mixes with non-contact cooling water in the culvert and discharges to Dry Creek at Outfall 001. The long, narrow site, pavement, drainage patterns, cooling water collection and discharge piping system prevents separate monitoring of the non-contact cooling water and storm water runoff discharges.

To control and manage storm water runoff at MSCC, a special condition in this permit will require MSCC to develop and implement a Storm Water Pollution Prevention Plan (SWPPP; see Section VIII – Special Conditions/Compliance Schedule). The SWPPP must address product storage, vehicle washing and other on-site activities.

MSCC operates offices, shops and a small fleet of trucks and tank cars related to its manufacturing business. "A moderate volume of vehicles (cars, trucks, forklifts, backhoe/loaders) are washed. Some tank cars are washed. We do not have commodities in our tank cars that are water soluble or oils. The exterior of tank cars are pressure washed (not detergent), and insoluble sulfur is removed. Most of this water drains to the adjacent land and evaporates. Some of the water may drain to the storm sewer. Vehicles are pressure washed, generally, at the main shop driveway. Only hot water is used. Water typically drains from the wash area to a water collecting trench at the scale track road crossing; water from this trench is occasionally pumped either to adjacent land, the blow down pit, or to the sewer (septic system)" (July 24, 2007 email from Steven Smith, P.E., Engineering and Environmental Consulting to the Department).

## B. Effluent Characteristics

### 1. Non-contact cooling water and storm water

Table 1 summarizes monthly self-monitoring effluent data reported by MSCC during the period of record (POR) from July 2001 through July 2006. This data set excludes flow and total suspended solids (TSS) data from the period of November 2005 through July 2006 because in an August 22, 2006 letter from MSCC the company reported this data

was incorrect. MSCC reported that a laboratory technician was miscalculating TSS concentrations; that person has received additional training and is now reporting TSS concentrations correctly.

**Table 1: Effluent Characteristics for the period July 2001 through July 2006.**

Parameter	Location	Units	Previous Permit Limit	Minimum Value <sup>(1)</sup>	Maximum Value <sup>(1)</sup>	Average Value	Number of Samples
Flow, Daily Average	Effluent	gpm	<sup>(2)</sup>	1,133	1,914	1,439	52
Flow, Daily Maximum	Effluent	gpm	<sup>(2)</sup>	1,157	1,931	1,472	52
TSS, Daily Average	Influent	mg/L	<sup>(2)</sup>	49	203	71	61
TSS, Instantaneous Maximum	Influent	mg/L	<sup>(2)</sup>	5	391	72	112
TSS, Daily Average	Effluent	mg/L	30 <sup>(3,4)</sup>	-102	7	-14	52
TSS, Instantaneous Maximum	Effluent	mg/L	30 <sup>(3,4)</sup>	-65	38	2.5	52
Temperature	Effluent	° F	95 <sup>(5)</sup>	64	95	73	60
pH	Effluent	s.u.	6.0-9.0	6	8.6	--	120

Footnotes:

- (1) Negative values indicate that the Yellowstone River TSS values exceeded the effluent TSS values.
- (2) No limit in previous permit; monitoring requirement only.
- (3) The effluent TSS value minus the Yellowstone River water TSS value must be 30 mg/L or less (Effluent TSS-Yellowstone River TSS=Net TSS).
- (4) This limit does not apply to discharges resulting from precipitation events greater than the 10-year 24-hour event.
- (5) Instantaneous maximum.

## 2. Compliance History

On December 12, 2005 the facility received a violation letter for exceeding the temperature limit of 95° F by one degree (96° F). On March 5, 2007 the facility received a violation letter for exceeding the TSS limit (35.3 mg/L). No other violation letters are noted in the facility file although the facility reported in its application that it exceeded the TSS limit in June 2004 (38.4 mg/L). A November 14, 2006 inspection noted that storm water and non-contact cooling water are commingled in the discharge culvert running the length of the facility and that boiler blow down water is discharged to the boiler blow down pond without a ground water permit.

## III. Rationale for Proposed Technology-based Effluent Limits

### A. Scope and Authority

The Montana Board of Environmental Review (BER) has adopted performance standards for point source discharges to state waters, under Title 17, Chapter 30, Subchapter 12. The Board has adopted by reference 40 CFR Subpart N which is a series of federal agency rules that adopt technology based effluent limits (TBEL) for existing sources and

performance standards for new sources [Administrative Rules of Montana (ARM) 17.30.1207(1)]. National Effluent Limit Guidelines (ELG) have not been promulgated under Subchapter N for non-contact cooling water at this type of facility.

In addition to Subchapter 12, the BER has adopted general treatment requirements that establish the degree of wastewater treatment required to maintain and restore the quality of state surface waters. This rule states that in addition to federal ELGs, the degree of wastewater treatment is based on the surface water quality standards; the state's nondegradation policy; the quality and flow of the receiving water; the quantity and quality of sewage, industrial wastes and other wastes to be treated; and the presence or absence of other sources of pollution on the watershed [ARM 17.30.635(1)]. Also, ARM the best practicable control technology currently available (BPCTCA) as defined in 40 CFR Chapter 1, Subchapter N (July 1, 1991).

On June 13, 1968 the Montana Board of Health issued the first MPDES permit to MSCC. The permit limited discharge flow and temperature to 1.2 million gallons per day (gpd) and 100°F, respectively. On January 18, 1974 the Environmental Protection Agency (EPA) issued a National Pollutant Discharge Elimination System (NPDES) permit to MSCC to discharge liquid effluent. The NPDES permit limited the maximum discharge temperature to 90°F. On April 12, 1977 the Montana Department of Health and Environmental Sciences issued a MPDES permit that limited the maximum temperature to 95°F. All subsequent MPDES permits have limited the maximum temperature to 95°F. The January 18, 1974 EPA Fact Sheet states the temperature effluent limitation is based on the most stringent of the following criteria: 1) best practicable treatment technology for industries with similar thermal discharges, 2) non-degradation of water quality and, 3) state water quality standards. Heated non-contact cooling water is expected to cool with ambient air, spring water and wetland water before the water enters Box Elder Creek. A November 14, 2006 inspection report by the Department measured the temperature (72°F) in Dry Creek. The effluent discharge temperature is usually of concern only during the summer months (June, July and August).

Based on best practicable treatment technology for industries with similar thermal discharges, the Department will maintain the 95°F temperature limit in this permit.

In the absence of federal effluent limitation guidelines, the Department will maintain the TSS limit as in the previous permit.

Instantaneous Maximum TSS: 30 mg/L above Yellowstone River supply water.

This limit was based on a discharge to the Yellowstone River. Although this limit is based on the effluent TSS concentration above the background quality of the Yellowstone River raw supply water and not Dry Creek, this is a conservative and protective limit for a discharge to Dry Creek, which flows to a wetland.

#### B. Nondegradation Load Allocations

The provisions of ARM 17.30.701, *et seq.* (Nondegradation of Water Quality) apply to new or increased sources of pollution [ARM 17.30.702(18)]. Sources that are in compliance with the conditions of their permit and do not exceed the limits established in the previous permit, or as determined from a permit previously issued by the Department, are not considered new or increased sources. Based on this analysis, the discharge does not constitute a new or increased source for the purposes of Montana Nondegradation requirements.

#### IV. Rationale for Proposed Water Quality-based Effluent Limits (WQBELs)

##### A. Scope and Authority

Permits are required to include WQBELs when TBELs are not adequate to protect state water quality standards (40 CFR 122.44 and ARM 17.30.1344). ARM 17.30.637(2) states that no wastes may be discharged that can reasonably be expected to violate any state water quality standard. Montana water quality standards (ARM 17.30.601, *et seq.*) define both water use classifications for all state waters and numeric and narrative standards that protect those designated uses. New sources, as defined in ARM 17.30.703(16), are subject to Montana Nondegradation Policy [75-5-303, Montana Code Annotated (MCA)] and regulations (ARM 17.30.701, *et. seq.*).

##### B. Receiving Water

###### 1. Surface water

Non-contact cooling water and storm water are discharged from the MSCC facility to Dry Creek. Dry Creek is an ephemeral drainage above the discharge point (Outfall 001) and an effluent dependent perennial stream beginning at Outfall 001. A representative of MSCC stated when the freeway (I-90) was constructed in the 1960's, Dry Creek stopped flowing (November 14, 2006 inspection report). Storm water from the Billings livestock yard, BNSF railroad right-of-way, a neighboring coke handling facility, and other businesses and roads south of the MSCC facility drains to Dry Creek (ephemeral section) during high runoff events (July 10, 2007 application cover letter).

Non-contact cooling wastewater and storm water discharged to Dry Creek at Outfall 001 flows north across ExxonMobil property through an old petroleum coke storage area for approximately ½ mile before it enters a marshy, wetland area near ExxonMobil's wastewater treatment lagoons. Based on previous permits, water drains from the wetland area into Box Elder Creek, a perennial stream, to the northeast for approximately 1½ miles before it enters the Yellowstone River.

A representative from the Montana Department of Fish, Wildlife and Parks (FWP) stated there are cool springs in the wetland area and in Box Elder Creek. FWP has not studied aquatic life or fish in Box Elder Creek because the creek flows entirely through private

land. FWP has data (July 27, 2007 facsimile from Earl Radonski to the Department) showing fish do use the small tributaries of the Yellowstone River. Longnose Dace, Lake Chubs, suckers and minnows have been found in Alkali Creek. In Five-mile Creek across the Yellowstone River from the mouth of Box Elder Creek, Longnose Dace, Lake Chubs, Fathead Chubs, suckers, Fathead minnows and other species have been found.

For purposes of protecting the Yellowstone River fishery during May through October, FWP measures the temperature in the Yellowstone River below the Huntley Irrigation Diversion and below the mouth of the Clarks Fork Yellowstone River (personal phone conversation with Earl Radonski, FWP Fisheries Technician in Billings on July 23, 2007).

Dry Creek is classified as C-3 according to Montana Water Use Classifications [ARM 17.30.611(1)(c)]. C-3 waters are to be maintained suitable for bathing, swimming, and recreation, and growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl and furbearers. The quality of these waters is naturally marginal for drinking, culinary, and food processing purposes, agriculture, and industrial water supply. This C-3 classification is different than the classification in the previous permit. The previous permit named the Yellowstone River (B-3 classification) as the receiving water, which is incorrect (although water eventually enters the river as described above). The ephemeral portion of Dry Creek south of the facility is not considered high quality water because it has zero flow or surface expression for more than 270 days during most years [75.5.103(10)(b)(ii)]. Dry Creek is considered high quality water at the point of discharge to the creek because it becomes a perennial stream.

The drainage basin is identified as USGS Hydrologic Unit Code (HUC) 10070007. Dry Creek and Box Elder Creek are not listed on the 1996 and 2006 303(d) list of impaired streams.

The estimated 7Q10 for Dry Creek is the minimum average daily flow (1133 gpm or 1.63 mgd) discharged by MSCC over the last six years [ARM 17.30.635(4)].

#### C. Applicable Water Quality Standards

Discharges to surface waters classified C-3 are subject to the specific water quality standards of ARM 17.30.624 (March 2006), Department Circular DEQ-7 (February 2006), as well as the general provision of ARM 17.30.635 through 637. In addition to these standards, dischargers are also subject to ARM 17.30 Subchapter 5 (Mixing Zones, November 2004) and Subchapter 7 (Nondegradation of Water Quality, June 2004).

ARM 17.30.635(4) requires that the design condition for disposal systems must be based on the 7-day average flow of the receiving water which is expected to occur on average once in 10-years (7Q10).

Discharges to ground water are subject to the specific water quality standards of ARM 17.30.1001-1042.

#### D. Mixing Zone

A mixing zone is an area where the effluent mixes with the receiving water and certain water quality standards may be exceeded [ARM 17.30.502(6)]. The Department must determine the applicability of currently granted mixing zones [ARM 17.30.505(1)]. Mixing zones allowed under a permit issued prior to April 29, 1993 will remain in effect unless there is evidence that previously allowed mixing zones will impair existing or anticipated uses [ARM 17.30.505(1)(c)].

In accordance with ARM 17.30.517(1)(b), acute water quality standards for aquatic life may not be exceeded in any portion of the mixing zone unless the Department finds that allowing minimal initial dilution will not threaten or impair existing uses. The discharge must also comply with the general prohibitions of ARM 17.30.637(1) which require that state waters, including mixing zones, must be free from substances which will:

- (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines;
- (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials;
- (c) produce odors, colors or other conditions as to which create a nuisance or render undesirable tastes to fish flesh or make fish inedible;
- (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; and
- (e) create conditions which produce undesirable aquatic life.

Although certain standards may be exceeded in the mixing zone, an effluent in its mixing zone may not block passage of aquatic organisms nor may it cause acutely toxic conditions [ARM 17.30.602(16)]. No mixing zone will be granted that will impair beneficial uses [ARM 17.30.506(1)]. Acute standards may not be exceeded in any part of the mixing zone [ARM 17.30.507(1)(b)]. Aquatic life chronic, aquatic life acute and human health standards may not be exceeded outside of the mixing zone [ARM 17.30.507(1)(a)].

A standard mixing zone may be granted for facilities which discharge less than 1 million gallons per day (MGD) or when mixing is nearly instantaneous [ARM 17.30.516(d)]. Nearly instantaneous mixing is assumed if the discharge is through an effluent diffuser, when the mean daily flow exceeds the 7-day, 10-year low flow (dilution ratio <1) or the permittee demonstrates through a Department approved study plan that the discharge is nearly instantaneous. A nearly instantaneous mixing zone may not extend downstream more than two (2) river widths. Effluent discharges which do not qualify for a standard mixing zone must apply for a source specific mixing zone in accordance with ARM 17.30.518 and must conform to the requirements of 75-5-301(4), MCA which states that

mixing zones must be the smallest practicable size; have minimal effects on uses; and, have definable boundaries. ARM 17.30.515(2) states that a person applying for a mixing zone must indicate the type of mixing zone and provide sufficient detail for the Department to make a determination regarding the authorization of the mixing zone under the rules of Subchapter 5.

A mixing zone is an area where the effluent mixes with the receiving water and certain water quality standards may be exceeded [ARM 17.30.502(6)]. The Department must determine the applicability of currently granted mixing zones [ARM 17.30.505(1)]. Mixing zones allowed under a permit issued prior to April 29, 1993 will remain in effect unless there is evidence that previously allowed mixing zones will impair existing or anticipated uses [ARM 17.30.505(1)(c)].

The mixing zone in the previous permit "consists of a marsh area that drains into Box Elder Creek and then into the Yellowstone River". Since the receiving water consists entirely of wastewater discharged from the facility (effluent dominated stream), except during occasional storm events, there is no receiving water in which the discharge will mix. Therefore, the mixing zone in the previous permit is inappropriate for this discharge and no mixing zone will be defined in this permit.

#### E. Basis and Calculations for WQBEL (Reasonable Potential)

Effluent limits are required for all pollutants which demonstrate a reasonable potential to exceed numeric or narrative standards. The Department uses a mass balance equation to determine reasonable potential based on *EPA Technical Support Document for Water Quality-based Toxics Control (TSD)* (EPA/505/2-90-001). Input parameters are based on receiving water concentration; maximum projected effluent concentration and design flow of the wastewater treatment facility, and the applicable receiving water flow.

In the absence of a mixing zone, the facility must comply with both numeric and narrative [ARM 17.30.637(1)] water quality standards at the point of discharge to Dry Creek.

##### 1. Conventional Pollutants

**Total Suspended Solids (TSS)**- TBELs in Part III of this SOB are sufficient to control suspended solids in the discharge; this TBEL limit will apply to the discharge. No additional WQBEL are required for this parameter.

##### 2. Non-conventional Pollutants

**Temperature** – The following temperature standard applies to C-3 water: A 3°F maximum increase above naturally occurring water temperature is allowed within the range of 32°F to 77°F; within the range of 77°F to 79.5°F, no thermal discharge is allowed which will cause the water temperature to exceed 80°F; and where the naturally occurring

water temperature is 79.5°F or greater, the maximum allowable increase in water temperature is 0.5°F. A 2°F per-hour maximum decrease below naturally occurring water temperature is allowed when the water temperature is above 55°F. A 2°F maximum decrease below naturally occurring water temperature is allowed within the range of 55°F to 32°F.

The narrative standard at ARM 17.30.637(1)(d) also applies to the discharge. It states “State surface waters must be free from substances attributable to municipal, industrial, agricultural practices or other discharges that will create concentrations or combinations of materials which are toxic or harmful to human, animal, plant, or aquatic life”.

For the ephemeral portion of Dry Creek located south of the facility, there is no data or information in which to measure a change in temperature so these standards cannot be applied to this segment of Dry Creek. For the perennial portion of Dry Creek below the point of discharge from the facility, a change in “naturally occurring” temperature of the creek can not be measured because the temperature is dependent on the discharge from the facility.

The TBEL for the temperature limit of 95°F in Part III of this SOB is sufficient to control the temperature of the discharge; protect existing uses of Dry Creek; and comply with ARM 17.30.637(1)(d). This temperature limit will apply to the discharge at Outfall 001. No additional WQBELs are required for this parameter.

### 3. Toxic Pollutants

**Total Residual Chlorine (TRC)** - The permittee has proposed to occasionally use chlorine as a biocide in the cooling tower. There is no TRC limit in the previous permit. The acute water quality standard for TRC is 0.019 mg/L; the chronic water quality standard for TRC is 0.011 mg/L. The TRC daily maximum limit in this permit is 0.019 mg/l; the TRC average monthly limit is 0.011 mg/L. These limits apply at the effluent discharge point in Dry Creek during the months TRC is used as a biocide. Analytical methods in 40 CFR Part 136 requires chlorine samples to be analyzed immediately. On-site sampling for total residual chlorine with a chlorine meter using an approved method (Part 136) is required. The method must achieve a minimum detection level of 0.1 mg/l. Sampling of effluent with analytical results less than 0.1 mg/l is considered in compliance with the chlorine limit.

**Total Dissolved Solids (TDS)/Electrical Conductivity (EC)** – No effluent limits or monitoring for TDS/EC has been required in previous permits. Since the Department is removing the requirement in the previous permit of “once through non-contact cooling water”, TDS in the cooling tower blow down may increase if non-contact cooling water is recycled and reused. To ensure beneficial uses (including agricultural uses) of Dry Creek are protected, EC limits will be included in this permit. The average monthly EC limit is 1500 µS/cm; the maximum daily EC limit is 2500 µS/cm [ARM 17.30.670 (2)(a)].

## V. Proposed Effluent Limits

Proposed Effluent Limits – Outfall 001

Parameter	Units	Average Monthly Limit <sup>1</sup>	Maximum Daily Limit <sup>1</sup>
Total Suspended Solids <sup>2</sup>	mg/L	--	30
Temperature	°F	--	95
Total Residual Chlorine <sup>3</sup>	mg/L	0.011	0.019
Electrical Conductivity	µS/cm	1,500	2,500
Footnotes: 1. See Definition section at end of permit for explanation of terms. 2. TSS above the background TSS value in the Yellowstone River. This limit does not apply to discharges resulting from precipitation events greater than the 10-year, 24-hour event. 3. Chlorine limit is effective during the months chlorine is utilized as a biocide in the non-contact cooling water tower. Sampling of effluent with analytical results less than 0.1 mg/L is considered in compliance with the chlorine limit.			

Effluent pH shall remain between 6.0 and 9.0. For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit [ARM 17.30 647(2)(c)].

There shall be no discharge of floating solids or visible foam in other than trace amounts [ARM 17.30 647(1)(b)].

There shall be no discharge which causes visible oil sheen in the receiving water [ARM 17.30 647(1)(b)].

There shall be no acute or chronic toxicity in the effluent discharge [ARM 1.30.637(1)(e)].

## VI. Monitoring Requirements

### A. Effluent Monitoring

The discharge point (Outfall 001) is the eastern end of the 14-inch culvert running the length of the facility that terminates in the center of the large 8 foot culvert under the railroad mainline tracks. The effluent sample must be obtained from Dry Creek (which is 100% effluent and/or storm water) 10 feet north of the large 8 foot culvert under the railroad tracks (see Figure 2).

<b>Monitoring Requirements</b>				
<b>Parameter</b>	<b>Unit</b>	<b>Monitoring Location</b>	<b>Frequency of Analyses</b>	<b>Sample Type<sup>1</sup></b>
Flow <sup>2</sup>	mgd	Effluent	Continuous	Instantaneous
Total Suspended Solids	mg/L	Effluent	1/Week	Grab
Total Suspended Solids	mg/L	Influent	1/Week	Grab
Net Total Suspended Solids <sup>3</sup>	mg/L	Effluent	Calculated	NA
pH	s.u.	Effluent	1/Week	Instantaneous
Total Residual Chlorine <sup>4</sup>	mg/L	Effluent	Daily	Grab
Electrical Conductivity	µS/cm	Effluent	1/Month	Grab
Footnotes: NA = Not applicable 1. See Definition section at end of permit for explanation of terms. 2. Measured by adding the Yellowstone River water flow meter reading and ground water pump curve results. 3. Net turbidity equals the effluent NTU value minus the Yellowstone River NTU value. (Effluent NTU - Yellowstone River NTU = Net NTU) 4. Effective January 1, 2009 during the months chlorine is used as a biocide.				

#### C. Additional Reporting Requirements

Analytical methods in 40 CFR Part 136 requires TRC samples to be analyzed immediately. On-site sampling for TRC with a chlorine meter using an approved method is required. The method must achieve a minimum detection level of 0.1 mg/L. Effluent samples with analytical results less than 0.1 mg/L is considered in compliance with the TRC limit.

#### VII. Nonsignificance Determination

The discharge from MSCC does not constitute a new or increased source of pollutants pursuant to ARM 17.30.702(18) and the discharge is not significant.

#### VIII. Special Conditions/Compliance Schedules

Pursuant to ARM 17.30.1350, a compliance schedule will be included in the permit to address the following items:

##### A. Boiler blow down pond

The boiler blow down pond is a source of pollutants to ground water. ARM 17.30.1001(13) defines "source" as any sewage system, treatment works, point source, disposal system, concentration of pollutants, or pond containing process wastes or pollutants used, employed, or operated so that the same results or under normal operating conditions may reasonably be expected to result in the discharge of pollutants to ground waters of the state.

1. Authority: ARM 17.30.1001(13) and 75-5-401(1)(a), MCA

This rule and statute requires that a ground water permit is necessary to discharge pollutants to ground water. Within 180 days, MSCC must eliminate the discharge of pollutants from the boiler blow down pond to ground water or apply for coverage under a ground water permit.

B. Storm water

Storm water enters onsite surface drains which empty into the culvert that runs the length of the facility. Storm water mixes with non-contact cooling water in the culvert and discharges to Dry Creek at Outfall 001.

1. Authority: ARM 17.30.1101(2) and 75-5-605(1)(a), MCA

To control and manage storm water runoff, MSCC must develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must address best management practices to control and prevent pollution to Dry Creek from product storage areas, vehicle washing and other site activities.

C. Schedule

MSCC must submit a certification letter describing how the discharge of pollutants from the boiler blow down pond to ground water was eliminated or apply for a ground water discharge permit by December 31, 2008 and submit a SWPPP by March 31, 2009.

Compliance Schedule	
Milestone	Due Date
Submit a certification letter describing how the discharge of pollutants from the boiler blow down pond to ground water was eliminated or apply for a ground water discharge permit.	December 31, 2008
Submit a SWPPP.	March 31, 2009

IX. Other Information

On September 21, 2000, a U.S. District Judge issued an order stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment (WQLS), the State is not to issue any new or increased permits under the MPDES program. The order was issued in the lawsuit Friends of the Wild Swan v. U.S. EPA, et al. (CV 97-35-M-DWM), District of Montana and Missoula Division. The DEQ finds that renewal of this permit does not conflict with the order because there are no new or increased sources associated with the discharge.

X. Information Sources

ARM Title 17, Chapter 30, Subchapter 5 - Mixing Zones in Surface and Ground Water. November 2004.

ARM Title 17, Chapter 30, Subchapter 6 - Surface Water Quality Standards. March 31, 2006.

ARM Title 17, Chapter 30, Subchapter 7 - Nondegradation of Water Quality. June 30, 2004.

ARM Title 17, Chapter 30, Subchapter 13 - Montana Pollutant Discharge Elimination System (MPDES) Standards. March 31, 2003.

40 CFR, Parts 122, 133, 136, July 1, 2004.

DEQ. Circular WQB-7, Montana Numeric Water Quality Standards. February 2006.

DEQ. Montana List of Water bodies in Need of Total Maximum Daily Load Development. 1996.

DEQ. Montana 303(d) List. A Compilation of Impaired and Threatened Water bodies in Need of Water Quality Restoration. Part A. Water Quality Assessment Results. November 24, 2006.

EPA. Office of Water, U.S. EPA NPDES Permit Writers' Manual, EPA-833-B-96-003. December 1996.

EPA. Technical Support Document for Water Quality based Toxics Control EPA/505/2-90-001. March 1991.

Prepared by: John Wadhams  
Date: April 2008

Figure 1

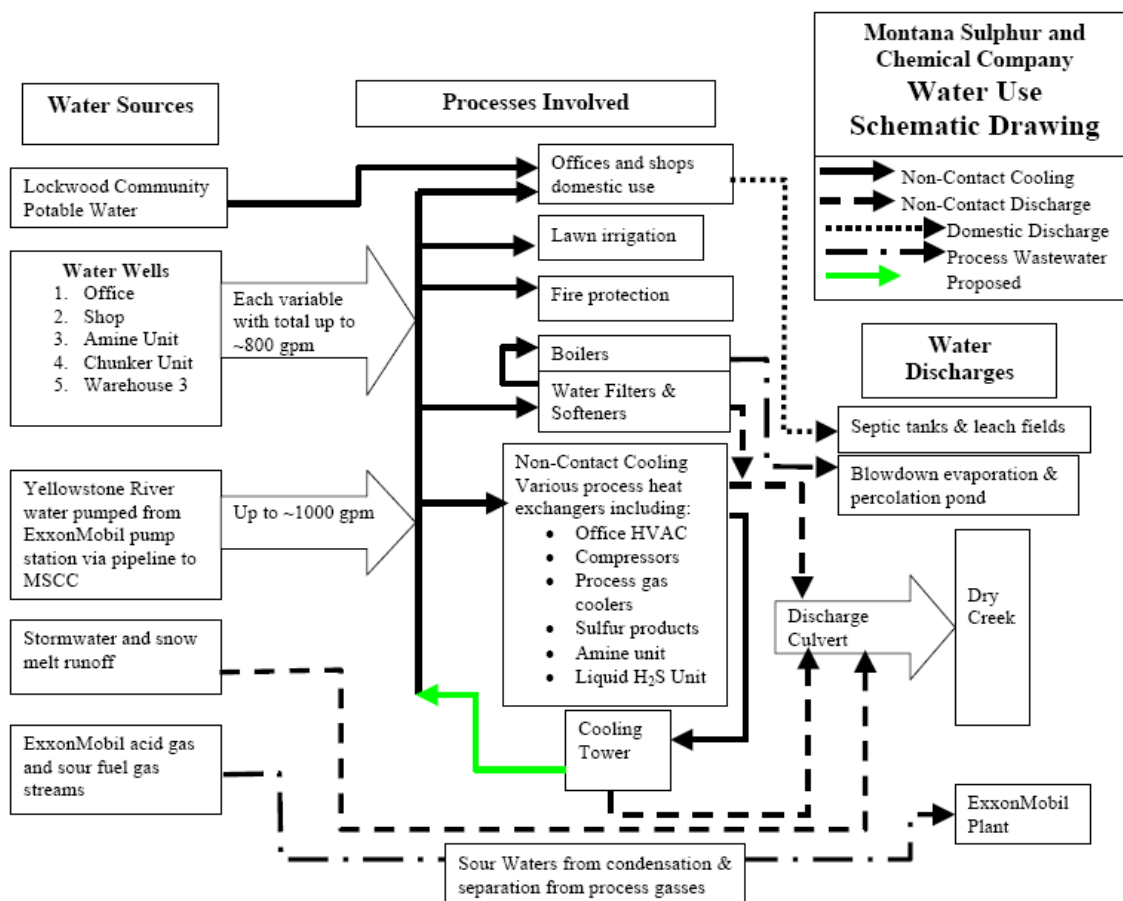


Figure 2

